UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/641,589	08/18/2000	Philip A. Cooper	11910-002001	6655

26161	7590	01/16/2004

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EXAMINER
PWU, JEFFREY C

ART UNIT	PAPER NUMBER
3628	

DATE MAILED: 01/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/641,589	COOPER ET AL.
	Examiner	Art Unit	
	Jeffrey Pwu	3628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *12/18/2003 Election*.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-3,8-11 and 27* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☐ Claim(s) _____ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All b)☐ Some * c)☐ None of:

       1. ☐ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____.

       3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

     a) ☐ The translation of the foreign language provisional application has been received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s). _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

1.   Applicant's election without traverse of Group I, claims 1-3, 8-11, and 27 in Paper

No. 7 is acknowledged. Claims 4-7 and 12-26 are withdrawn from further consideration.

Title

2.   The title of the invention is not descriptive. A new title is required that is clearly

indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 101

3.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture,
> or composition of matter, or any new and useful improvement thereof, may obtain
> a patent therefor, subject to the conditions and requirements of this title.

> Claims 1-3, 8-11, and 27 are rejected under 35 U.S.C. 101 because the claimed
> invention is not supported by either a specific and substantial asserted utility or a
> well established utility. The claimed invention is noted not to be a computer
> program, data structure, a natural phenomenon, and a non-descriptive material per
> se. Furthermore, the claimed invention do not produce a useful, concrete and
> tangible result therefore they are nonstatututory. The claimed invention also is not
> a product for performing a process, nor it is a specific machine or manufacture.
> The claimed invention is not a specific tangible machine or process for facilitating
> a business transaction.
> As to the technology requirement, note MPEP Section iV 2(b). Also note In Re
> Waldbaum, 173USPQ 430 (CCPA 1972) which teaches "useful arts" is

synonymous with "technological arts". In re Musgrave, 167USPQ 280 (CCPA1970), In re Johnston, 183USPQ 172 (CCPA 1974), and In re Toma, 197USPQ 852 (CCPA 1978), all teach a technological requirements.

For a claim to be statutory under 35 USC 101 the following two conditions must be met:
1) In the claim, the practical application of an algorithm or idea result in a useful, concrete, tangible result, AND
2) The claim provides a limitation in the technological art that enables a useful, concrete, tangible result.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --
(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

5.   Claims 1-3, 8-11, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by

Makivic (U.S. 6,061,662).

Makivic teaches claims:

1. A method comprising:

receiving data representing current prices of options on a given asset, deriving from said data an estimate of a corresponding implied probability distribution of the price of said asset at a future time (fig.4 - histogram and real data; 50 - historical server data; col.18, line 49- col.20, line 12), and

making information about said probability distribution available within a time frame that is useful to investors (abstract).

2. The method of claim 1 in which the data represent a finite number of prices of options at spaced-apart strike prices of the asset, and also including calculating a set of first differences of said finite number of prices to form an estimate of the cumulative probability distribution of the price of said asset at a future time (See Monte Carlo Simulations).

3. The method of claim 2 also including calculating a set of second differences of the finite number of strike prices from the set of first differences to form an estimate of the probability distribution function of the price of said asset at a future time (col.4, line 28- col.14, line 33).

8. receiving data representing current prices of options on a given asset, the options being associated with spaced-apart strike prices of the asset at a future time,

the data including shifted current prices of options resulting from a shifted underlying price of the asset, the amount by which the asset price has shifted being different from the amount by which the strike prices are spaced apart, and

deriving from said data an estimate of a quantized implied probability distribution of the price of said asset at a future time, the elements of the quantized probability distribution being more finely spaced than for a probability distribution derived without the shifted current price data. (Col.18, line 49-col.20, line 13)

9. A method comprising

receiving data representing current prices of options on a given asset, the options being

associated with spaced-apart strike prices of the asset at a future time,

deriving from said data an estimate of an implied probability distribution of the price of

said asset at a future time, the mathematical derivation including a smoothing operation,

and making information about said probability distribution available within a time frame

that is useful to investors (col.2, line 58-col.4, line 6).

10. The method of claim 9 in which the smoothing operation is performed in a volatility

domain (Col.18, line 49-col.20, line 13).

11. The method of claim 9 in which the smoothing operation is performed in the domain

of the option prices or in the domain of the probability distribution information (Col.18,

line 49-col.20, line 13).

27. A method comprising:

defining a current value of an option as a quadratic expression that depends on the

difference between the current price of the option and the current price of the underlying

security, and using Monte Carlo techniques to estimate a probability distribution of the

value at a future time T of a portfolio that includes the option (Abstract).

Any inquiry concerning this communication or earlier communications from the Examiner

should be directed to Jeffrey Pwu whose telephone number is (703) 308-7835.

9 January 2004

JEFFREY PWU
PRIMARY EXAMINER